

## **REMARKS**

### **I. INTRODUCTION:**

The Applicant thanks the Examiner for the withdrawal of the previously issued restriction requirement and for the careful consideration of this application. Claims 1 and 9 are currently amended, solely to expedite prosecution. Claims 4-7 and 9 are currently cancelled, without prejudice or disclaimer. Claims 1 and 2 are currently pending. In view of the foregoing amendments and the following remarks, the Applicant respectfully requests that the Examiner reconsider all outstanding rejections and that they be withdrawn.

### **II. CLAIM REJECTIONS UNDER 35 U.S.C. §112, SECOND PARAGRAPH:**

On page 3, claims 9 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 9 is currently cancelled, without prejudice or disclaimer. The Applicant respectfully asserts that this rejection is now moot.

### **III. AMENDMENTS TO CLAIMS 1 AND 2:**

Claims 1 and 2 are currently amended, solely to expedite prosecution. The amendments to claims 1 and 2 are supported by Page 1, Lines 30-33 and Page 3, Lines 25-27 of the Specification, as originally filed. Specifically, the claims are amended in a manner to clarify that the components

or elements are selectively removed from the array in a controlled and/or controllable manner. The invention thus makes it possible to prevent the formation of a mass or conglomerate of mixed up components and to prevent damage caused by separation. (*See* Specification at Page 1, Lines 19-22 and 30-33).

**IV. CLAIM REJECTIONS UNDER 35 U.S.C. § 103(A):**

(I) On page 4, the Office Action rejects claims 1 and 2 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,418,181 to Ohkubo et al. (“Ohkubo”) in view of U.S. Patent No. 6,380,059 to Ho et al. (“Ho”). In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and withdrawal of the present rejection.

**(a) Claim 1:**

*First*, no reasonable combination of Ohkubo and Ho discloses or renders obvious “an electrically conductive supporting structure,” as recited in claim 1. The Office Action apparently aligns the “bonding wax 71” of Ohkubo’s FIG. 8 with the “supporting structure” of claim 1. However, the bonding wax 71 of Ohkubo is not **electrically conductive** as claimed. The disclosure of Ho would not remedy this deficiency of Ohkubo. For at least this reason, no reasonable combination of Ohkubo and Ho discloses or renders obvious “an electrically conductive supporting structure,” as recited in claim 1.

*Second*, no reasonable combination of Ohkubo and Ho discloses or renders obvious “wherein each element is attached to at least one of an electrically conductive supporting structure and at least one other element by at least one electrically conductive support tab,” as claimed. The Office Action aligns the “element 9” and the “bonding wax 71” of Ohkubo’s FIG. 9D with the “element” and the “supporting structure” of claim 1, respectively. The Office Action further aligns the “support layer 5” of Ohkubo’s FIG. 9D with the “support tab” of claim 1. However, each element 9 of Ohkubo is **not** attached to the bonding wax 71 and/or another element 9 **by support layer 5**, as claimed. Rather, as shown in FIG. 9D of Ohkubo, each element 9 is attached to each support layer 5 and other elements 9 via **the bonding wax 71**. (See also Ohkubo at Column 7, Lines 13-15, reciting that “support layer 5 formed in the grid recess 4 is **separated from** the operation layer 2 with the bonding wax 71 binding them together”). The disclosure of Ho would not remedy this deficiency of Ohkubo.

*Third*, no reasonable combination of Ohkubo and Ho discloses or renders obvious “selectively removing or breaking the at least one support tab supporting one of the discrete elements by passing a current therethrough to controllably remove the respective discrete elements from the array,” as recited in claim 1. Here, the Office Action acknowledges that Ohkubo does not teach selectively removing or breaking the support layer 5, as claimed. Instead, the Office Action asserts that it would have been obvious to substitute the “constricted segment 41” of Ho’s FIG. 2A for Ohkubo’s support layer 5. However, for argument’s sake, even if Ho did disclose selectively removing or breaking the constricted segment 41 by passing a current therethrough, the bonding wax 71 of Ohkubo would still remain intact, and thus, would **prevent** the element 9 of Ohkubo from

being **controllably removed** from the array, as claimed. (See Ohkubo at Column 7, Lines 17-20). Therefore, no reasonable combination of Ohkubo and Ho discloses or renders obvious “selectively removing or breaking the at least one support tab supporting one of the discrete elements by passing a current therethrough to controllably remove the respective discrete elements from the array,” as recited in claim 1.

For at least these reasons, claim 1 is patentable over any reasonable combination of Ohkubo and Ho.

(2) Claim 2:

*First*, no reasonable combination of Ohkubo and Ho discloses or renders obvious “an electrically conductive supporting mesh,” as recited in claim 2. The Office Action apparently aligns the “grid recess 4” of Ohkubo’s FIG. 4 with the “supporting mesh” of claim 2. However, the grid recess 4 of Ohkubo is **neither electrically conductive nor supportive**, as claimed. Rather, the grid recess 4 of Ohkubo is **an opening** used to **separate** element regions and in which the support layer 5 is formed. (See Ohkubo at Column 4, Lines 56-58). The disclosure of Ho would not remedy this deficiency of Ohkubo. For at least this reason, no reasonable combination of Ohkubo and Ho discloses or renders obvious “an electrically conductive supporting mesh,” as recited in claim 2.

*Second*, no reasonable combination of Ohkubo and Ho discloses or renders obvious “wherein each Gunn diode is attached to at least one of an electrically conductive supporting mesh and at least one other Gunn diode by at least one electrically conductive support tab,” as recited in claim 2. The Office Action aligns the “element 9” of Ohkubo’s FIG. 9D and the “grid recess 4” of

Ohkubo's FIG. 4 with the "Gunn diode" and the "supporting structure" of claim 1, respectively. The Office Action further aligns the "support layer 5" of Ohkubo's FIG. 9D with the "support tab" of claim 2. However, Ohkubo does not disclose that each element 9 is attached to the grid recess 4 and another element 9 by support layer 5, as claimed. Rather, the Applicant respectfully notes that FIGs. 2-8 of Ohkubo disclose a process of fabricating Gunn diodes according to a first embodiment, whereas FIGs. 9A-9D disclose a process of fabricating Gunn diodes according to a second embodiment. Thus, during the process stage depicted in FIG. 4 of Ohkubo, **element 9 has not yet been formed**. Likewise, in the stage of the process depicted in FIG. 9D of Ohkubo, the element 9 has been formed, however element 9 is **not** attached to the grid recess 4 and another element 9 by support layer 5, as claimed. Rather, in FIG. 9D of Ohkubo, each element 9 is attached to each support layer 5 and other elements 9 via **bonding wax 71**. (See also Ohkubo at Column 7, Lines 13-15, reciting that "support layer 5 formed in the grid recess 4 is **separated from** the operation layer 2 with the bonding wax 71 binding them together"). The disclosure of Ho would not remedy this deficiency of Ohkubo.

*Third*, no reasonable combination of Ohkubo and Ho discloses or renders obvious "selectively removing or breaking the at least one support tab supporting one of the Gunn diodes by passing a current therethrough to controllably remove the respective Gunn diodes from the array," as recited in claim 2. Here, the Office Action acknowledges that Ohkubo does not teach selectively removing or breaking the support layer 5, as claimed. Instead, the Office Action asserts that it would have been obvious to substitute the "constricted segment 41" of Ho's FIG. 2A for Ohkubo's support layer 5. However, for argument's sake, even if Ho did disclose selectively removing or

breaking the constricted segment 41 by passing a current therethrough, the bonding wax 71 of Ohkubo's FIG. 9D would still remain intact, and thus, would **prevent** the element 9 of Ohkubo from being **controllably removed** from the array, as claimed. (See Ohkubo at Column 7, Lines 17-20). Therefore, no reasonable combination of Ohkubo and Ho discloses or renders obvious "selectively removing or breaking the at least one support tab supporting one of the Gunn diodes by passing a current therethrough to controllably remove the respective Gunn diodes from the array," as recited in claim 2.

For at least these reasons, claim 2 is patentable over any reasonable combination of Ohkubo and Ho.

(2) On page 6, the Office Action rejects claim 2 under 35 U.S.C. §103(a) as being obvious over Ho in view of Ohkubo. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and withdrawal of the present rejection.

*First*, no reasonable combination of Ho and Ohkubo discloses or renders obvious "selectively removing or breaking the at least one support tab supporting one of the Gunn diodes by passing a current therethrough," as recited in claim 2. The Office Action apparently aligns the "electrically-conductive traces 40" of Ho's FIGs. 1-3c with the "at least one support tab" of claim 1. However, Ho does not disclose **selectively** removing or breaking at least one electrically-conductive trace 40 by passing a current therethrough, as claimed. Rather, Ho discloses "applying an electrical current to pass through **each** of the electrically-conductive traces, the electrical current being adequate enough in magnitude to melt the resistively enlarged point (i.e. constricted segment 41 in

FIG. 2A) while leaving each of the electrically-conductive traces open circuited.” (See Ho at Column 2, Lines 44-50). Thus, it is clear that Ho discloses melting all of the constricted segments 41 on substrate 10 collectively, at one time to create open-circuited electrically conductive traces 40. Ohkubo does not remedy the deficiencies of Ho. Therefore, no reasonable combination of Ho and Ohkubo discloses or renders obvious “selectively removing or breaking the at least one support tab supporting one of the Gunn diodes by passing a current therethrough,” as recited in claim 2.

*Second*, no reasonable combination of Ho and Ohkubo discloses or renders obvious “selectively removing or breaking the at least one support tab ... to controllably remove the respective Gunn diodes from the array,” as recited in claim 2. The Office Action apparently aligns the “electrically-conductive traces 40” and the “semiconductor chips 30” of Ho’s FIGs. 1-3c with the “at least one support tab” and “Gunn diodes” of claim 2, respectively. However, Ho does not disclose selectively removing or breaking at least one electrically-conductive trace 40 to controllably remove the semiconductor chip 30 from the array, as claimed. Rather, in Ho, as the constricted segments 41 are broken, an open-circuited testing procedure can be performed on the electrically-conductive trace 40 on the substrate 10. (See Ho at Column 4, Lines 3-5). Ho does not suggest that each semiconductor chip 30, which is fixed to substrate 10, can be controllably removed from the array, as claimed. For the reasons discussed above, Ohkubo does not remedy the deficiencies of Ho. Therefore, no reasonable combination of Ho and Ohkubo discloses or renders obvious “selectively removing or breaking the at least one support tab ... to controllably remove the respective Gunn diodes from the array,” as recited in claim 2.

For at least these reasons, claim 2 is patentable over any reasonable combination of Ho and Ohkubo.

(3) On page 10, the Office Action rejects claim 7 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,549,240 to Urban (“Urban”) in view of Ohkubo. Claim 7 is currently cancelled, without prejudice or disclaimer. The Applicant respectfully asserts that this rejection is now moot.

(4) Further on page 10, the Office Action rejects claim 9 under 35 U.S.C. §103(a) as being obvious over Urban. Claim 9 is currently cancelled, without prejudice or disclaimer. The Applicant respectfully asserts that this rejection is now moot.

**V. CLAIM REJECTIONS UNDER 35 U.S.C. §102(B):**

(I) On page 8, the Office Action rejects claim 1 under 35 U.S.C. § 102(b) as being anticipated by Ho. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and withdrawal of the present rejection.

*First*, Ho does not disclose “selectively removing or breaking the at least one support tab supporting one of the discrete elements by passing a current therethrough,” as recited in claim 1. The Office Action apparently aligns the “electrically-conductive traces 40” of Ho’s FIGs. 1-3c with the “at least one support tab” of claim 1. However, Ho does not disclose **selectively** removing or breaking at least one electrically-conductive trace 40 by passing a current therethrough, as claimed. Rather, Ho discloses “applying an electrical current to pass through **each** of the electrically-



conductive traces, the electrical current being adequate enough in magnitude to melt the resistively enlarged point (i.e. constricted segment 41 in FIG. 2A) while leaving each of the electrically-conductive traces open circuited.” (See Ho at Column 2, Lines 44-50). Thus, it is clear that Ho discloses melting all of the constricted segments 41 on substrate 10 collectively, at one time to create open-circuited electrically conductive traces 40. Therefore, Ho does not disclose “selectively removing or breaking the at least one support tab supporting one of the discrete elements by passing a current therethrough,” as recited in claim 1.

*Second*, Ho does not disclose “selectively removing or breaking the at least one support tab ... to controllably remove the respective discrete elements from the array,” as recited in claim 1. The Office Action apparently aligns the “electrically-conductive traces 40” and the “semiconductor chip 30” of Ho’s FIGs. 1-3c with the “at least one support tab” and “discrete elements” of claim 1, respectively. However, Ho does not disclose selectively removing or breaking at least one electrically-conductive trace 40 to controllably remove the semiconductor chip 30 from the array, as claimed. Rather, in Ho, as the constricted segments 41 are broken, an open-circuited testing procedure can be performed on the electrically-conductive trace 40 on the substrate 10. (See Ho at Column 4, Lines 3-5). Ho does not suggest that each semiconductor chip 30, which is fixed to substrate 10, can be controllably removed from the array, as claimed. Therefore, Ho does not disclose “selectively removing or breaking the at least one support tab ... to controllably remove the respective discrete elements from the array,” as recited in claim 1.

For at least these reasons, claim 1 is patentable over Ho.

(2) Further on page 8, the Office Action rejects claims 4-6 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,549,240 to Urban. Claims 4-6 are currently cancelled, without prejudice or disclaimer. The Applicant respectfully asserts that this rejection is now moot.

**VI. CONCLUSION:**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. The Applicants, therefore, respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. The Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

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